

2016

MATRICULATION EXAMINATION

DEPARTMENT OF MYANMAR EXAMINATION

BIOLOGY

Time Allowed: (3) Hours

WRITE YOUR ANSWERS IN YOUR ANSWER BOOKLET.

DO NOT COPY THE QUESTIONS.

1. State **TRUE** or **FALSE** to the following statements. Do not copy the statements. (20 marks)
- i. The apices of the stem, root and their branches are growing points of the plant.
 - ii. The presence of air spaces in the petioles of water hyacinth are to make the plant lighter and to float on water.
 - iii. Each stamen consists of ovary, style and stigma.
 - iv. Bees, butterflies, moths and birds are important external agents for entomophily.
 - v. Fruits develop from the ovules of the flowers.
 - vi. One of the functions of the seed coat is to protect the mechanical injuries.
 - vii. The embryo of maize grain is embedded in the scutellum.
 - viii. The duodenum is the anterior part of the large intestine.
 - ix. The visceral motor fibers make up the autonomic nervous system.
 - x. If there is no starch, the leaf is stained blue by iodine solution.
 - xi. In chewing mechanism, the food is changed chemically.
 - xii. The energy produced in aerobic respiration is stored in the mitochondria as ADP.
 - xiii. The movement of water through semipermeable membrane is termed as diffusion.
 - xiv. The presence of root hairs in the root increases the surface area for absorption.
 - xv. If a shoot is illuminated from one side, it curves towards the light source in phototropism.
 - xvi. The function of the iris is to focus light rays onto the retina.
 - xvii. Sperms duct conveys the sperms to the urethra.
 - xviii. The cell cycle includes prophase, metaphase, anaphase, telophase and interphase.
 - xix. Meiotic cell division is occurred in somatic cells.
 - xx. The places where organisms live are termed as habits.

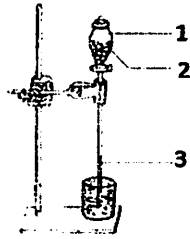
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2. Complete the following statements with appropriate words. Do not copy the statements. (20 marks)
- i. A definite organ that forms a fruit always encloses the seeds of -----.
 - ii. The stem develops from ----- of the embryo.
 - iii. The axis of the flower is made up of pedicel and -----.
 - iv. Just before pollination, the nucleus of the pollen divides into tube nucleus and ----- nucleus.
 - v. Three groups of fruits are simple, ----- and composite.
 - vi. Below the point of the attachment to the cotyledon is the -----.
 - vii. Maize grain is monocotyledonous and -----.
 - viii. In rabbit, heart is four-chambered with two ----- and two ventricles.
 - ix. In vertebral column of the rabbit, cervical regions has ----- vertebrae.
 - x. Plants get the materials required for photosynthesis from their -----.
 - xi. The muscles of the ----- squeeze the bolus into the upper oesophagus.
 - xii. The energy released from the ATP is utilized in cell division and -----.
 - xiii. Water and dissolved salts from the soil travel upwards through the vessels of -----.
 - xiv. Lymph node is made up of connective tissues and cells and produces -----.
 - xv. In plant hormones, traumatin is the wound hormone and ----- is the flowering hormones.
 - xvi. A typical neurone consists of a cell body and an -----.
 - xvii. Plants and animals can reproduce sexually which does require -----.
 - xviii. During interphase, DNA replication causes each chromosome to have sister -----.
 - xix. The term hybrid is synonymous with the ----- condition.
 - xx. Water cycle includes evaporation, ----- and precipitation.

3. Answer ALL questions. (12 marks)

- a. Give the reasons for the dispersal of seeds.
- b. Describe the location and prominent features of medulla oblongata.
- c. State the functions of lower epidermis in a leaf.

- d. Provide labels and caption to the given diagram. (Do not copy the diagram.)



OR

State the similarity between lymphatics and most veins.

- e. Explain the two types of messages resulting from information in plants and animals.

OR

Compare the activities of the sperms and the eggs.

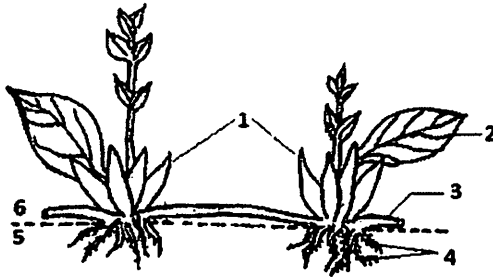
- f. Define the term phenotype with some examples.

OR

Mention about the epiphytes.

4. Answer ANY FOUR questions. (16 marks)

- a. Give labels and caption to the diagram (Do not copy the diagram.) Name the two types of adventitious roots.



- b. Tabulate the arteries that supply blood to the parts of the body above the diaphragm in rabbit.
- c. Draw a word diagram for the general pattern of animal nutrition.

OR

Give an equation for the aerobic respiration and explain how ATP is formed in this respiration.

- d. Mention to demonstrate the transpiration pull. (Illustration is not necessary.)

OR

What is a reflex action? List the three types of neurones and explain about the function of the receptor organ.

- e. Briefly explain about that asexual reproduction in plants that has a great deal of commercial importance.

OR

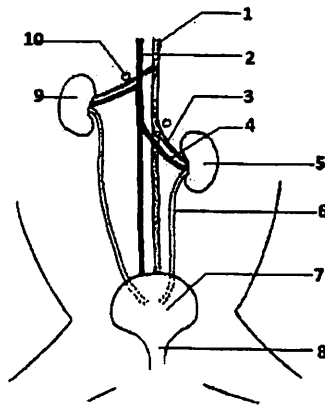
Describe the importance of mitosis and meiosis cell divisions.

OR

Define the terms ecology, ecosystem and producers.

5. Answer **ANY FOUR** questions. (32 marks)

- a. What is self-pollination? How flowers are adapted for the self-pollination?
- b. Provide labels and caption to the given diagram and clarify about label numbers 3, 4, 6 and 7.



- c. With suitable diagrams explain about the investigation to show that carbon dioxide is necessary for photosynthesis.
- d. Explain about the function of lungs and name the two dead spaces in mammals.

OR

List the purposes of water that is utilized in living organisms and give an explanation for each purpose except lubricant.

- e. Tabulate the structure and functions of the two layers of epidermis and blood vessels and fat layers of dermis in human skin.

OR

Discuss about the gestation period with placenta and umbilical cord.

- f. Give an account on the sex chromosome mechanisms with suitable diagram.

OR

Why the cycles of elements in nature are important? Explain in detail for the carbon cycle. (Word diagram is not necessary.)
